In the Claims

1. (Currently amended) Process for the in particular short-duration thermal treatment of in particular flat objects, such as semiconductor, glass or metal substrates, to or from which heat is supplied or dissipated on both sides, at least partially through heat conduction via a heat-conducting medium, characterized in that the heat-conducting medium used is a mixture of at least two gases with very different thermal conductivities, and the mixture is set individually on the two sides of the substrate ~~(1)~~ in such a manner that the respective surface temperature is time-controlled taking account of the respective heat exchange via thermal radiation.

2. (Currently amended) Apparatus for the in particular short-duration thermal treatment of in particular flat objects, such as semiconductor, glass or metal substrates, having temperature-influencing devices ~~(2, 3)~~ disposed on both sides of the substrate surfaces for heat exchange with the substrate ~~(1)~~, which heat exchange takes place at least in part through heat conduction via a heat-conducting medium, characterized in that the heat-conducting medium is a mixture of at least two gases with very different thermal conductivities, and the mixture can be set individually on the two sides of the substrate.

3. (Currently amended) Method or apparatus according to ~~one or more of the preceding claims~~ claim 2, characterized in that the temperature is the same on both sides during the temperature-influencing action.

4. (Currently amended) Method or apparatus according to ~~one or more of the preceding claims~~ claim 3, characterized in that the temperature is different on the two sides during the temperature-influencing action.

5. (Currently amended) Method or apparatus according to ~~one or more of the preceding claims~~ claim 4, characterized in that the gases are hydrogen and nitrogen or helium and argon.

6. (Currently amended) Method or apparatus according to ~~one or more of the preceding claims~~ claim 5, characterized by a continuous flow of gas into a gap space ~~(4, 5)~~ between temperature-influencing device ~~(2, 3)~~ and substrate ~~(1)~~.

7. (Currently amended) Method or apparatus according to ~~one or more of the preceding claims~~ claim 6, characterized in that the gas flow is controlled by means of mass flow controllers ~~(8, 9; 8', 9')~~.

8. (Currently amended) Method or apparatus according to ~~one or more of the preceding claims~~ claim 7, characterized in that the substrate ~~(1)~~ is mounted floating freely on a gas cushion formed by the gas stream associated with the underside of the substrate.

9. (Currently amended) Method or apparatus according to ~~one or more of the preceding claims~~ claim 8, characterized in that the substrate ~~(1)~~ is driven in rotation, floating freely, by the gas stream which forms the heat-conducting medium.

10. (Currently amended) Method or apparatus according to ~~one or more of the preceding claims~~ claim 9, characterized in that the temperature control involves dissipation of heat or supply of heat.

11. (Currently amended) Method or apparatus according to ~~one or more of the preceding claims~~ claim 10, characterized in that the gas composition or gas pressure changes during the heat exchange over the course of time.

12. (Currently amended) Method or apparatus according to ~~one or more of the preceding claims~~ claim 11, characterized in that the mass flow of the thermally conducting medium into the gap spaces ~~(4, 5)~~ is so slight that the quantity of heat which

is supplied or dissipated via the gas mass flow is significantly less than the heat which is dissipated or supplied via heat conduction.